



US Army Corps
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International Energy Agency
Energy Conservation in
Buildings and Community
Systems Programme



ENERGY EFFICIENT TECHNOLOGIES FOR GOVERNMENT BUILDINGS - NEW AND RETROFITS

Third Industry Workshop

Co-sponsored by

Department of Defense (DoD)

Department of Energy (DoE)

ASHRAE

IEA ECBCS Program Annex 46

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Handouts

- Name Badge
- Energy Managers Session Program
- Workshop Program
- Attendees list
- International Energy Agency AIVC Center technical materials
- CD-ROM with ERDC-CERL Technical Reports and Proceedings from previous Workshops
- CD-ROM with the 3rd Workshop Proceedings and materials will be published later and materials will be also available on the website

Ventilation Information Paper n° 8

December 2004



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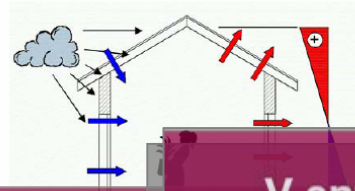
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Air Infiltration and Ventilation Centre

Airtightness of buildings

V. Dorer, C. Tanner, A. Weber
EMPA, Switzerland



1 Introduction

If the building envelope is not airtight enough, significant amounts of energy may be lost due to exfiltrating air, or damage to structural elements may occur due to condensation. Air leakage can be avoided by appropriate design and careful construction. Test methods to check the quality of airtightness and to locate the individual leakages are available and are increasingly used.

2 Importance of airtightness of building envelope

Since ancient times, it has been common knowledge that sealing cracks and joints, in the past with mud and clay, prevent cooling of the building and reduces draft risk, thus providing better thermal comfort.

Ventilation Information Paper n° 5 June 2004

Ventilation Information Paper n° 6 June 2004

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1 Introduction

1.1 Definitions

Mixing ventilation: This is the most common air distribution method, involving supplying ventilation air to the room and extracting it from the room, causing the air in the room to be mixed.

1 Introduction 1.1 Basics

A heat recovery unit transfers heat from the exhaust air stream to the supply air stream, thus reducing the energy required to heat the supply air.

VIP Ventilation Information Papers

Ventilation Information Paper n° 7 September 2004



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1 Introduction

VIP Indoor Air Pollutants, Part 1 defined major types of indoor air pollutants, their measurement, and concentrations guidelines [Ref. 1].

This VIP addresses the sources of pollutants and effective measures to control them or to mitigate their impacts on occupants and building systems. The most effective means to control indoor air pollution is through reduction or elimination of pollution sources. Indoor pollutants originate both within the building and from outside. The first step in controlling the sources of indoor air pollution is to identify them. Building materials, occupants and their activities, and equipment and appliances can all be sources of indoor pollutants. Once the sources have been identified, control strategies can be developed and implemented. Appropriate ventilation strategies can reduce concentrations of pollutants that can't be eliminated by source control. Air cleaning and filtration can reduce the concentrations of contaminants in buildings when ventilation systems recirculate air within the building.

For an introductory discussion of indoor air pollutants and concentrations, see reference 1.

2 Pollutant sources

2.1 Indoor sources

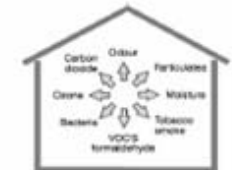
Controlling indoor air pollutants requires knowing their sources.



Air Infiltration and Ventilation Centre

Indoor Air Pollutants Part 2: Description of sources and control/mitigation measures

Hil Levin
Lawrence Berkeley National Laboratory, USA



Most indoor air pollutants come from a variety of sources and activities indoors. These include housekeeping and maintenance products, occupant-related activities and sources, building use-related sources, building-related sources, HVAC systems, and others. Many of these sources can be controlled fully or partially while others cannot. Table 1 identifies pollutants commonly found in offices and many other building types and their sources within the buildings.

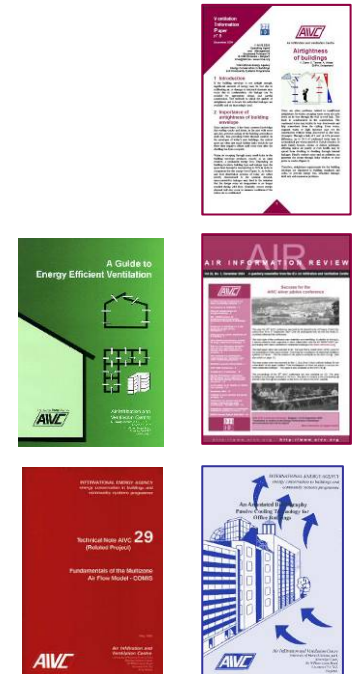
2.2 Outdoor sources

Outdoor air can be a source of pollutants from motor vehicle exhaust, commercial and manufacturing sources, public works/utility, agriculture, construction, building maintenance, building exhaust, birds and rodents, ground and water sources. Contaminants from these sources frequently find their way inside through the building exterior, door and window openings, or other pathways. The best way to avoid contamination from outdoor air pollutants is to carefully locate the building away from such sources and to locate building ventilation air intakes distant from pollution sources.

Air Infiltration and Ventilation Centre Publications

Available at www.aivc.org:

- 58 Technical Notes
- 6 Guides
- 12 Annotated Bibliographies
- 10 Ventilation Information Papers
- Quarterly Newsletter: AIR
- 25 Annual Conference Proceedings
- Bibliographic Database with 16000 References



ERDC-CERL is sponsoring the USA users:

usernames and passwords for the AIVC website can be obtained by
registering @ https://kd.erd.c.usace.army.mil/projects/ecbcs/aivc_database/

Energy Managers Session

- Organized as a part of the workshop upon the request from IMCOM and is co-sponsored by ACSIM;
- Presentations by Paul Volkman – IMCOM Energy Manager and Don Juhasz - ACSIM Chief of Utilities & Energy Branch to share with you their thought and expectations and to inform about centrally available funding sources and programs;
- Robert Billmyre, USACE HQ Electrical Mechanical Team Leader, will be talking about how Corps is going to implement EAct 2005 and the Army energy efficiency requirements in new construction under MILCON transformation program;
- Forum moderated by Dale Herron from CERL, who will try to engage all of you and especially representatives from Corps Districts in discussion on what are the road blocks to implement advanced energy technologies and energy conservation measures in buildings retrofit projects under different programs
- The core of this session are presentations by energy managers..... Please, stick to your 10 min time slots..., talk about your successful and unsuccessful energy projects and what exactly will make you more successful besides centrally funded extra \$\$\$.
- Presentations on Energy Efficiency Analysis Program (EEAP) and centrally funded energy assessments which will be conducted to support the efforts of those who really need this help and who can benefit the most. The results of these assessments will be used to craft energy projects and their implementation strategies as well as will be disseminated among others as lessons learned
- Networking Dinner

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Welcome to the Workshop